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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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|-----------------|-------------|----------------------|---------------------|------------------|

10/775,429

02/10/2004

Nusrallah Jubran

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EXAMINER

NOTE, JANIS L

ART UNIT

PAPER NUMBER

1756

MAIL DATE

DELIVERY MODE

04/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/775,429

Applicant(s)

JUBRAN ET AL.

Examiner

Janis L. Dote

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 21-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 21-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>3/5/07</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. The examiner acknowledges the amendments to claims 1, 8, 21, and 25 filed on Feb. 7, 2006. Claims 1-14 and 21-27 are pending.

2. The rejections under 35 U.S.C. 103(a) of claims 1, 21, and 25 over US 4,415,640 (Goto) and of claims 1, 4-8, 11-14, and 24 over Goto alone or combined with the other cited references, set forth in the office action mailed on Nov. 3, 2006, paragraphs 12-16, have been withdrawn in response to the amendments to claims 1, 8, and 21 filed on Feb. 7, 2006. Those amendments exclude the solubilizing group from being an alkyl moiety or an alkoxy moiety. The instant specification at page 10, lines 6-7, states that "[w]hen the term moiety is used, such as alkyl moiety or phenyl moiety, that terminology indicates that the chemical moiety is not substituted." For all of the reasons set forth by applicants in the response filed on Feb. 7, 2007, pages 15-21, Goto does not teach or suggest the charge transport compound recited in those claims.

3. Applicants' claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional application upon which priority is claimed fails to provide

adequate support under 35 U.S.C. 112 for claims 1-14 and 21-27 of this application.

Provisional Application 60/466,813 (Application'813) does not provide an adequate written description for subject matter recited in the instant claims for the reasons discussed in the office action mailed on Mar. 22, 2005, paragraph 5, which are incorporated herein by reference. Accordingly, the subject matter recited in instant claims 1-14 and 21-27 is accorded benefit only of the filing date, Feb. 10, 2004, of the instant application.

4. The disclosure is objected to because of the following informalities:

(1) The amended paragraph beginning at page 21, line 12, of the specification, set forth in the amendment filed on Sep. 8, 2006, discloses that the solubilizing substituent comprises a $-(CH_2)_nH$ group where n is an integer between 1 and 50 and one or more of the methylene groups can be replaced by B or P." However, it is not clear how a methylene group, which is divalent, can be replaced with groups that are not divalent.

(2) The specification also discloses that the solubilizing substituent comprises a $-(CH_2)_nH$ group where n is an integer

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between 1 and 50 and one or more of the methylene groups can be replaced by B or P. See the amended paragraphs beginning at page 3, line 1, page 8, line 21, and page 20, line 23, of the specification, set forth in the amendment filed on Mar. 16, 2006. However, it is not clear how a methylene group, which is divalent, can be replaced with groups that are not divalent.

Appropriate correction is required.

Applicants' arguments filed on Feb. 7, 2007, regarding the objections in items (1) to (2) above have been fully considered but they are not persuasive.

(1) and (2) Applicants assert that terminology "group" as defined in the instant specification does not apply to B and P. Applicants assert that "B and P could be substituted in such as a way as to provide the appropriate number of bonds. One of ordinary skill in the art would recognize that the substituted group would be inserted in the methylene chain in such a way as to provide the appropriate number of bonds to each group." Applicants further assert that "as long as the noted methylene replacement is at least double valent, the portions remaining can be appropriately substituted based on the liberal substitution defined in the specification." Applicants refer to exhibits 1 and 2.

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Applicants' assertions are not persuasive. Based on the disclosure in the instant specification, a person having ordinary skill in the chemical arts would not have known what groups applicants intended to be bonded to B and P such that the substituted B and P are divalent. The instant specification provides no guidance to a person having ordinary skill in the art as to what groups are bonded to B and P to render the substituted B and P divalent. The instant specification merely discloses that one of the methylene groups in the group $-(CH_2)_nH$ can be replaced by . . . B . . . P" Furthermore, the showings in exhibits 1 and 2 are not persuasive. The originally filed specification does not disclose any chemical structures comprising the chemical substituents "B" and "P" in a methylene chain. Nor does the specification indicate that "B" in the methylene chain is only substituted with one hydrogen atom to render the substituted B divalent or is bonded to one $=CH-$ entity to render the substituted B divalent. Nor does the specification indicate that "P" in the methylene chain is only substituted with one hydrogen atom to render the substituted P divalent or is bonded to one or two $=CH-$ entities and also substituted with one hydrogen atom to render the substituted P divalent. Furthermore, according to applicants' assertions, "as long as the noted methylene replacement is at least double

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valent, the portions remaining can be appropriately substituted based on the liberal substitution defined in the specification."

Moreover, applicants' assertion that the terminology "group" does not apply is not persuasive. The instant specification at page 10, lines 20-22, states that "[i]n the description of chemical substituents, there are certain practices common to the art that are reflected in the use of the language." The instant specification further defines the terminologies "group" and "moiety." There is no disclosure in the instant specification that when the terminologies "group" or "moiety" are not used, there is no limitation on the substitution of the chemical substituent. Thus, based on the disclosure in the instant specification, the chemical substituents "B and P" are either classified as a chemical substituent "group" or a chemical substituent "moiety." As discussed in the last office action mailed on Nov. 3, 2006, the instant specification at page 10, lines 22-24, states that "[t]he term group indicates that the generically recited chemical entity (e.g., alkyl group . . .) may have any substituent thereon which is consistent with the bond structure of that group . . . no substitution would be included within the term that would alter the fundamental bond structure of the underlying group." The instant specification at page 11,

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lines 6-7, discloses that "[w]hen the term moiety is used, such as alkyl moiety or phenyl moiety, that terminology indicates that the chemical moiety is not substituted." Therefore, the chemical substituents "B" and "P" cannot be substituted "in such a way as to provide the appropriate number of bonds" as asserted by applicants. The substitution would alter the fundamental bond structure of B and P.

Accordingly, given the plain language of the objected disclosure in the instant specification, a person having ordinary skill in the art would conclude that the disclosure of the replacement of the divalent methylene group with B or P was in error. A person having ordinary skill in the art would have had to resort to baseless speculation to decide what is meant by the disclosure of replacing a $-CH_2-$ with the non-divalent chemical substituents B or P. "The meaning of every term used in a claim should be apparent from the prior art or from the specification and drawings at the time the application is filed." Applicants are "required to make clear and precise the terms that are used to define the invention whereby the metes and bounds of the claimed invention can be ascertained." MPEP 2173.05(a)(I) (8th edition, Rev. 5, Aug. 2006).

Accordingly, for the reasons discussed above, the objections stand.

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5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-14 and 21-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Instant claims 1, 8, and 21 are indefinite in the phrase "the solubilizing substituent comprises a $-(CH_2)_nH$ group where n is an integer between 1 and 50, and one or more of the methylene groups is optionally replaced by a . . . B, P . . ." because it is not clear how a methylene group, which is divalent, can be replaced with groups that are not divalent.

Instant claim 25 is further indefinite in the phrase " R_7 comprises a $-(CH_2)_nH$ group where n is an integer between 1 and 50, and one or more of the methylene groups is optionally replaced by a . . . B, P . . ." because it is not clear how a methylene group, which is divalent, can be replaced with groups that are not divalent.

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Applicants' arguments filed on Feb. 7, 2007, have been fully considered but they are not persuasive for the reasons discussed in paragraph 4, items (1) and (2) above.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-14 and 21-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Instant claims 1, 8, 21, and 25 recite that in the charge transport compound formula, the symbol X is "a p-N,N-diphenylaminophenylene group."

The originally filed specification does not provide an adequate written description of said symbol X. The originally filed specification at page 22 exemplifies two particular charge

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transport compounds that are represented by the chemical formulas recited in instant claims 1, 8, 21, and 25, when the symbol X is p-N,N-diphenylaminophenylene. The term "a p-N,N-diphenylaminophenylene group" is broader than the disclosed species p-N,N-diphenylaminophenylene because the term "group" encompasses substituted p-N,N-diphenylaminophenylenes. See the originally filed specification at page 10, lines 22-24, which states that "[t]he term group indicates that the generically recited chemical entity (e.g., alkyl group . . .) may have any substituent thereon which is consistent with the bond structure of that group" (emphasis added).

Applicants' arguments filed on Feb. 7, 2007, have been fully considered but they are not persuasive.

Applicants assert that the term "p-N,N-diphenylaminophenylene group" is not broader than what has been disclosed and described in the instant specification. Applicants assert that the specification at page 3, line 7-8, and page 4, lines 15-31, refer to "X as comprising an arylamine group such as a p-N,N-disubstituted)arylamine group." Applicants assert that p-N,N-diphenylaminophenylene group is a type of p-(N,N-disubstituted)arylamine group. Applicants further assert that the structures provided at page 22 are "non-limiting examples." Applicants assert that the "claims are not

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required to be limited to those embodiments that are expressly disclosed . . . the claims can encompass more than the particular species expressly disclosed in the specification."

Applicants' assertions are not persuasive. The question is not whether the claims are enabled, but whether the originally filed specification provides an adequate written description so that a person having ordinary skill in the art in reviewing the originally filed specification would have recognized that applicants had possession of the particular sub-genus "p-N,N-diphenylaminophenylene group." The answer is "no" for the following reasons:

(1) As noted by applicants, the originally filed specification at pages 3, lines 7-8, and page 4, lines 15-31, generically defines the symbol X as comprising an arylamine group, such as a p-(N,N-disubstituted)arylamine group. The broad disclosure encompasses the symbol X as comprising "a p-N,N-diphenylaminophenylene group," as recited in instant claims 1, 8, 21, and 25. However, there is no description in that disclosure that X comprises a "p-N,N-diphenylaminophenylene group" as recited in the instant claims.

(2) Applicants' assertion that "the term 'moiety' was purposefully not used in association with the value for X [in claims 1, 8, 21, and 25], instead the term 'group' was used" is

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not persuasive. The term "group" does not exclude unsubstituted chemical entities. The originally filed specification at page 10, lines 22-26, states that the "term 'group' indicates that the generically recited chemical entity . . . may have any substituent thereon which is consistent with the bond structure of that group. For example, where the term 'alkyl group' is used, the term would not only include unsubstituted . . . alkyls . . . but also substituents . . ." Moreover, the originally filed claims 1, 8, 21, and 25 did not recite that X comprises a "p-N,N'-diphenylaminophenylene group" as now recited in the instant claims.

(3) As discussed in the rejection above, the originally filed specification only provides an adequate written description of the species "p-N,N-diphenylaminophenylene" moiety. There is no description of the sub-genus "p-N,N-diphenylaminophenylene group," which includes substituted p-N,N-diphenylaminophenylenes, such as p-N,N-di-(3,4-dichlorophenyl)aminophenylene or p-N,N-diphenylamino-(2,5-dinitro)-phenylene. There is no disclosure of these examples. The disclosed single species "p-N,N-diphenylaminophenylene" does not provide an adequate written description for the broad sub-genus "p-N,N-diphenylaminophenylene group" recited in the instant claims. A person having ordinary skill in the art would

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not have recognized that applicants had possession of the sub-genus recited in the instant claims.

Thus, for the reasons discussed above and in the rejection, the originally filed specification does not adequately describe the particular sub-genus "p-N,N-diphenylaminophenylene group" recited in the instant claims.

Accordingly, the rejection stands.

9. **THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to

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Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLD

Apr. 24, 2007

Janis L. Dote
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PRIMARY EXAMINER
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